

(19)



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 1 284 113 A2

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:
19.02.2003 Bulletin 2003/08

(51) Int Cl.7: **A47C 1/023**

(21) Application number: 02016810.0

(22) Date of filing: 26.07.2002

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
IE IT LI LU MC NL PT SE SK TR**
Designated Extension States: --
AL LT LV MK RO SI

(72) Inventor: **Feltrin, Claudio**
31100 Treviso (IT)

(74) Representative: **Modiano, Guido, Dr.-Ing. et al**
Modiano & Associati SpA
Via Meravigli, 16
20123 Milano (IT)

(30) Priority: 09.08.2001 SM 200100015

(71) Applicant: **Arper S.p.A.**
31050 Monastier di Treviso (Prov. of Treviso) (IT)

(54) **Chair**

(57) A chair (1) comprising a frame (2) for supporting a seat (5) optionally associated with a backrest (6), the

frame being provided with means (7) for sliding coupling to complementarily shaped means formed below the seat (5).

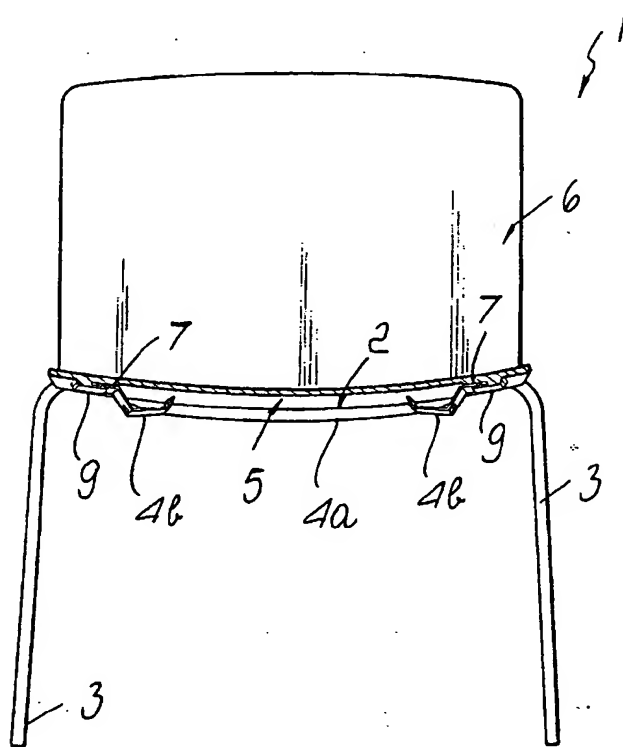


Fig. 2

EP 1 284 113 A2

Description

[0001] The present invention relates to a chair.

[0002] Known kinds of chairs are currently used being usually constituted by a supporting frame for a seat that is optionally provided with a backrest and/or with armrests.

[0003] The frame and the seat are preferably interconnected by riveting or bolting or by way of the interconnection of screws that pass through the seat to be associated in complementarily shaped holes formed in the frame.

[0004] Such known types of chairs, however, have the drawback that they require, for their assembly, the use of riveting machines or at least of personnel specialized in performing the assembly and interconnection of parts by way of the above cited known kinds of mechanical means.

[0005] Accordingly, these assembly operations are performed directly during production, so that the end product is the complete chair ready for use.

[0006] This known kind of chair, preassembled directly at the factory, has the drawback of being very bulky, thus causing the operations for storing and transporting it to be difficult and onerous.

[0007] As a partial remedy, chairs are known which are provided so that they can be stacked together, thus allowing a considerable reduction in bulk.

[0008] However, this constructive solution has the drawback of entailing a considerable limitation of the creative possibilities of the engineer and designer, since the aesthetic appearance of the chair becomes subordinate to the need for it to be stackable; moreover, the dimensions still remain significant.

[0009] The aim of the present invention is to solve the above-noted technical problems, eliminating the drawbacks of the cited prior art, by providing a chair that allows an easy and quick interconnection between the seat and the frame that does not require the availability of any kind of machine.

[0010] Within this aim, an object of the invention is to provide a chair that allows optimum storage and transport from the point of production to the point of distribution or sale.

[0011] Another object is to reduce the production costs of said chairs by reducing both the number of machines used and the use of labor.

[0012] Another object is to provide a chair that allows adjustment of the mutual position of the frame and the seat, ensuring that the user can customize the chair.

[0013] Another object is to provide a chair that is structurally simple and has low manufacturing costs.

[0014] This aim and these and other objects that will become better apparent hereinafter are achieved by a chair, comprising a frame for supporting a seat and/or a backrest, characterized in that said frame is provided with means for sliding coupling to complementarily shaped means formed below said seat.

[0015] Advantageously, there are additional means for locking said seat in a chosen position with respect to said frame.

[0016] Conveniently, there are stroke limiting means for positioning said seat with respect to said frame.

[0017] Further characteristics and advantages of the invention will become better apparent from the following detailed description of a particular embodiment thereof, illustrated only by way of non-limitative example in the accompanying drawings, wherein:

Figure 1 is a bottom view of the chair according to the invention;

Figure 2 is a partially sectional front view of the chair of Figure 1;

Figure 3 is an exploded bottom perspective view of the chair;

Figures 4 and 5 are perspective views of two details of Figure 3;

Figure 6 is a perspective view of a second embodiment of the frame of the chair.

[0018] With reference to the figures, the reference numeral 1 designates a chair that comprises a frame, designated by the reference numeral 2, that is advantageously made of a metallic material that is advantageously tubular and has, in this embodiment, four legs 3 that protrude downward.

[0019] The legs are advantageously mutually associated or rigidly coupled by two transverse elements 4a and by two longitudinal elements, designated by the reference numeral 4b, which constitute a quadrilateral that is arranged on an approximately horizontal plane.

[0020] The frame 2 acts as a support for a seat, designated by the reference numeral 5, with which a backrest 6 and/or two armrests, not shown in the figure, are optionally associated.

[0021] Two approximately rectangular wings 7 protrude externally from the pair of longitudinal elements 4b of the frame 2 and constitute means for sliding coupling to complementarily shaped means formed below said seat 5.

[0022] The complementarily shaped means are advantageously constituted by a pair of receptacles 8 formed by the interspaces between the lower surface of the seat 5 and two tabs 9 that protrude from it so as to lie approximately parallel to the seat 5.

[0023] The tabs 9 are associated, or obtained monolithically, with the seat at at least one edge, designated by the reference numeral 10a.

[0024] In the example shown in the figures, the tabs 9 have a first edge 10a and a second edge 10b, which are contiguous and provide a connection to the seat 5, so that the second edge 10b constitutes stroke limiting means for the sliding of the pair of wings 7 in the respective seats 8.

[0025] The pair of wings 7 advantageously has first holes, designated by the reference numeral 11, which

are preferably threaded for the optional interconnection of screws, not shown, that pass through slots 12a or second holes 12b formed in the tabs 9.

[0026] Advantageously, there are also means suitable to facilitate unidirectional sliding, such as for example lugs 13 that protrude obliquely from the lower surfaces of the two wings 7 and can be optionally associated within said second holes 12b.

[0027] With reference to Figure 3, it is noted that it is possible to fit the seat on the frame easily and very rapidly: this assembly does not require special knowledge or skills and therefore can optionally be performed even by the user.

[0028] This allows to ship the chairs in a disassembled condition, so that they occupy a very small space by being constituted by a frame and a seat (with or without a backrest) that can be stacked separately on other frames and seats.

[0029] The sliding and interlocking connection further allows to save on the cost of the mechanical means that are normally used, particularly avoiding the use of screws and rivets.

[0030] Nonetheless, it is possible to use for example screws for the connection of the wings 7 of the frame to the tabs 9.

[0031] It has thus been observed that the chair of the invention has achieved the intended aim and objects, a chair having been provided that allows to assemble the seat and the frame rapidly and simply, so as to allow to perform the interconnection once the components have been transported to the points of distribution or sale.

[0032] In this manner one reduces not only production costs but also storage and shipping costs.

[0033] Figure 6 illustrates a different embodiment of the invention, in which the reference numeral 101 designates a chair that comprises a frame 102 suitable to act as a support for a seat, designated by the reference numeral 105, with which a backrest 106 and/or two armrests, not shown in the figure, are optionally associated.

[0034] The frame 102 is advantageously constituted by a plate 120, which is approximately rectangular and is provided with interconnection means 121 for one or more ground resting legs, which are not shown.

[0035] The interconnection means 121 are constituted, for example, by a hole that is suitable for interconnection for example with a pin, not shown, that is in turn associated in a lower region with said one or more legs.

[0036] The plate 120 is provided laterally with two longitudinal edges, designated by the reference numeral 104b, from which two approximately rectangular wings 107 protrude to constitute means for sliding coupling to complementarily shaped means formed under the seat 105.

[0037] The complementarily shaped means are advantageously constituted by two receptacles 108 formed by the interspaces provided between the lower surface of the seat 105 and two tabs 109 that protrude from the seat so as to lie approximately parallel to the

seat 105.

[0038] This embodiment achieves the same advantages as the preceding one.

[0039] The materials used, as well as the dimensions that constitute the individual components of the chair of the invention, may of course be more pertinent according to specific requirements.

[0040] The disclosures in San Marinense Patent Application No. SM-A-200100015 from which this application claims priority are incorporated herein by reference.

[0041] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly, such reference signs do not have any limiting effect on the interpretation of each element identified by way of example by such reference signs.

Claims

1. A chair, comprising a frame for supporting a seat and/or a backrest **characterized in that** said frame is provided with means for sliding coupling to complementarily shaped means formed below said seat.
2. The chair according to claim 1, **characterized in that** said frame has one or more legs for resting on the ground and has two mutually parallel longitudinal elements at its upper end.
3. The chair according to claim 1, **characterized in that** said frame has four legs that protrude downward, are mutually associated or rigidly coupled by way of two transverse elements and two longitudinal elements that constitute a quadrilateral that lies on an approximately horizontal plane.
4. The chair according to claims 1 and 3, **characterized in that** said means for sliding coupling are constituted by two approximately rectangular wings that protrude outward from said two longitudinal elements.
5. The chair according to claims 1 and 3, **characterized in that** said sliding coupling means interact in said complementarily shaped means, formed under said seat, which are constituted by two seats formed by interspaces defined between the lower surface of said seat and two tabs that protrude from said seat so as to lie approximately parallel to said seat.
6. The chair according to claims 1 and 5, **characterized in that** said tabs are associated, or obtained monolithically, with said seat at at least one first edge.

7. The chair according to claims 1 and 6, **characterized in that** said tabs are associated, or obtained monolithically, with said seat at said first edge and at a second edge that is contiguous to the first edge and constitutes stroke limiting means for the sliding of said pair of wings in said pair of receptacles. 5
8. The chair according to one or more of the preceding claims, **characterized in that** said pair of wings is provided with first holes which are threaded and are designed for the optional interconnection of screws that pass through slots or second holes formed in said pair of tabs. 10
9. The chair according to one or more of the preceding claims, **characterized in that** it has means suitable to facilitate a unidirectional sliding of said pair of wings within said pair of receptacles, said means protruding obliquely from the lower surfaces of said pair of wings, so as to be associated within said second holes of said pair of tabs. 15 20
10. The chair according to one or more of the preceding claims, **characterized in that** said seat has, in a lower region, at least one pair of L-shaped lugs that constitute said means for sliding coupling within complementarily shaped C-like profiled elements formed in said frame. 25
11. The chair according to one or more of the preceding claims, **characterized in that** said frame is constituted by an approximately rectangular plate, which is provided with means for connection to one or more ground resting legs and is laterally provided with two longitudinal edges from which two approximately rectangular wings protrude externally and constitute means for sliding coupling to complementarily shaped means formed below said seat. 30 35 40 45 50 55

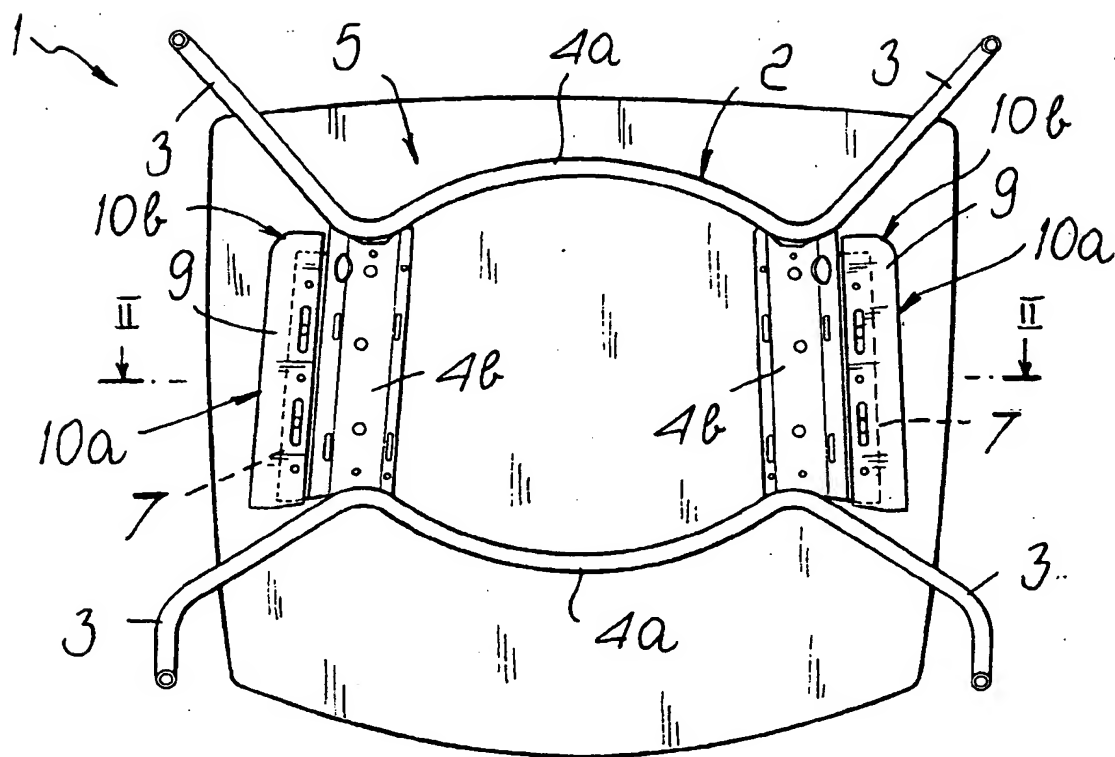


Fig. 1

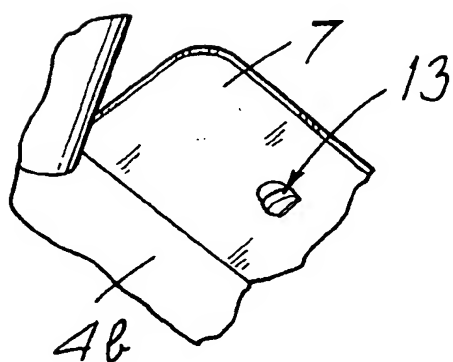


Fig. 4

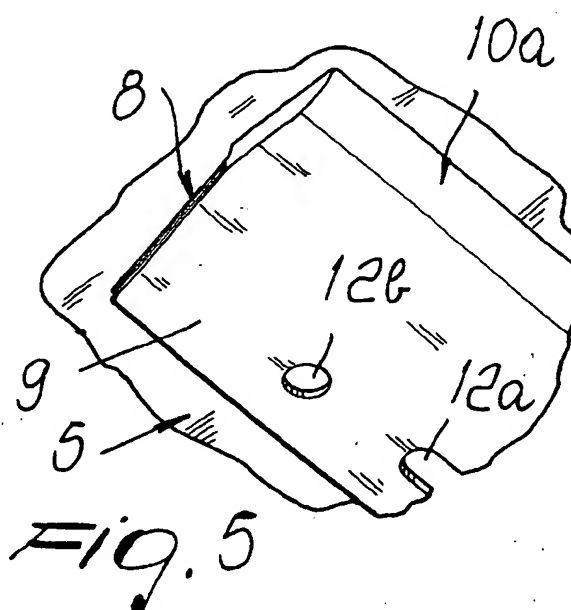


Fig. 5

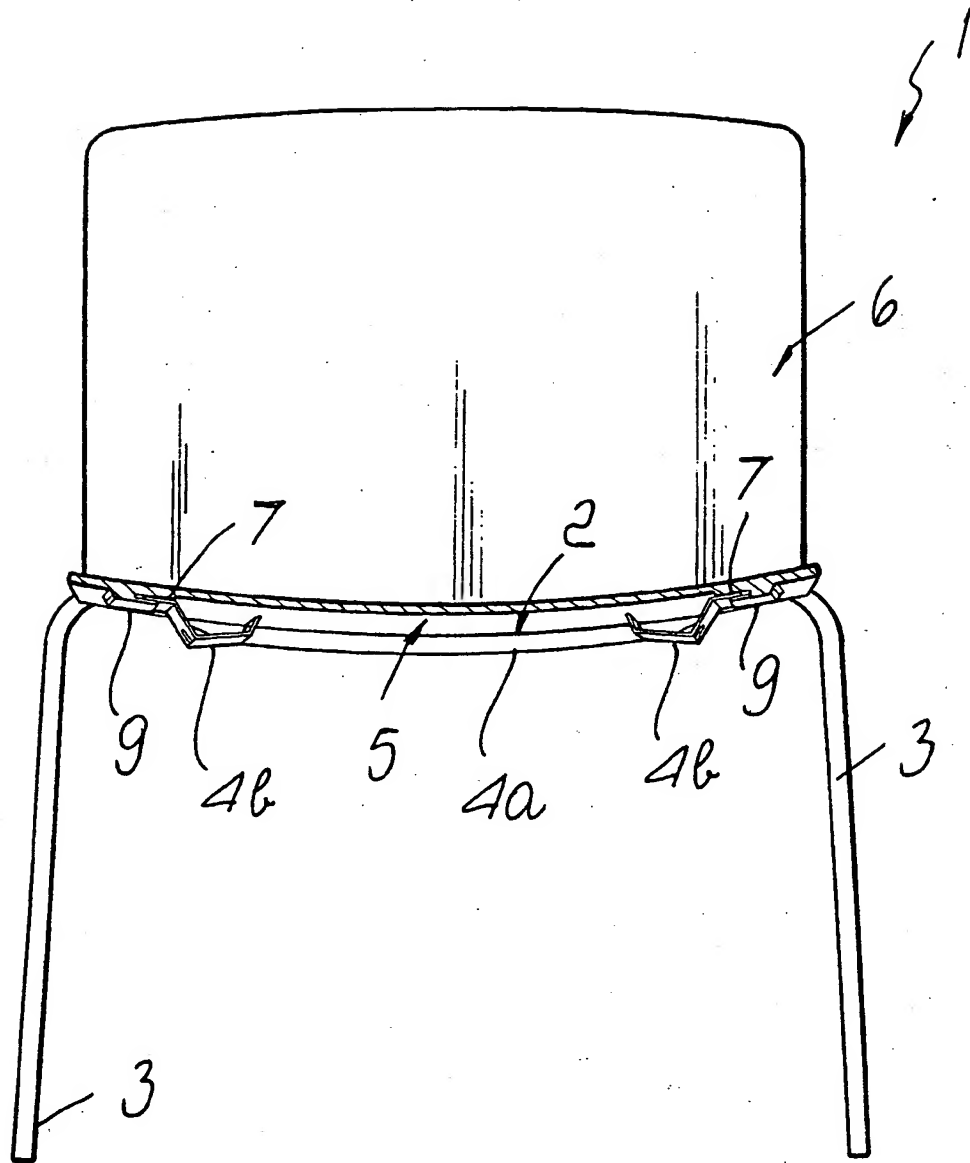


Fig. 2

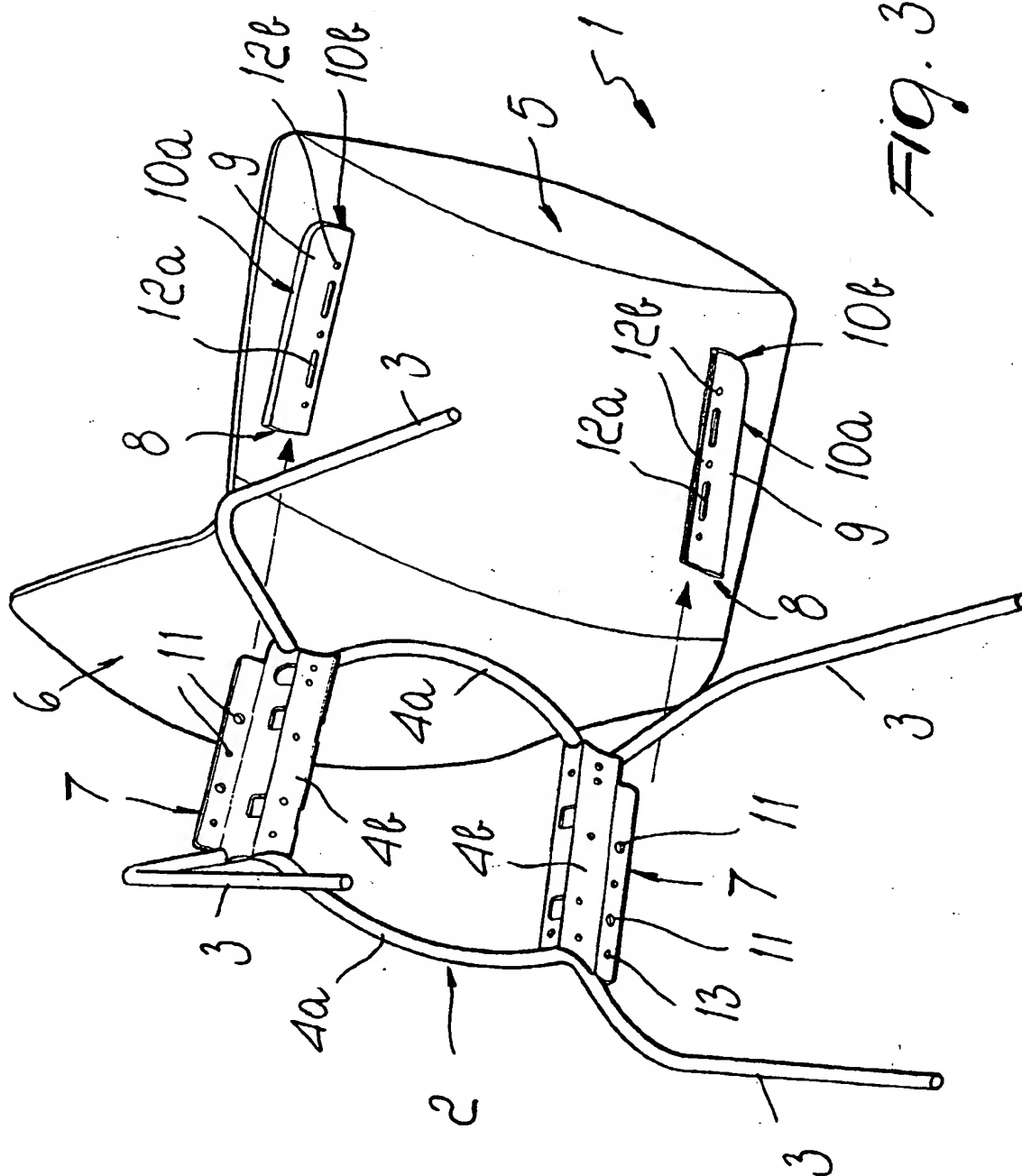
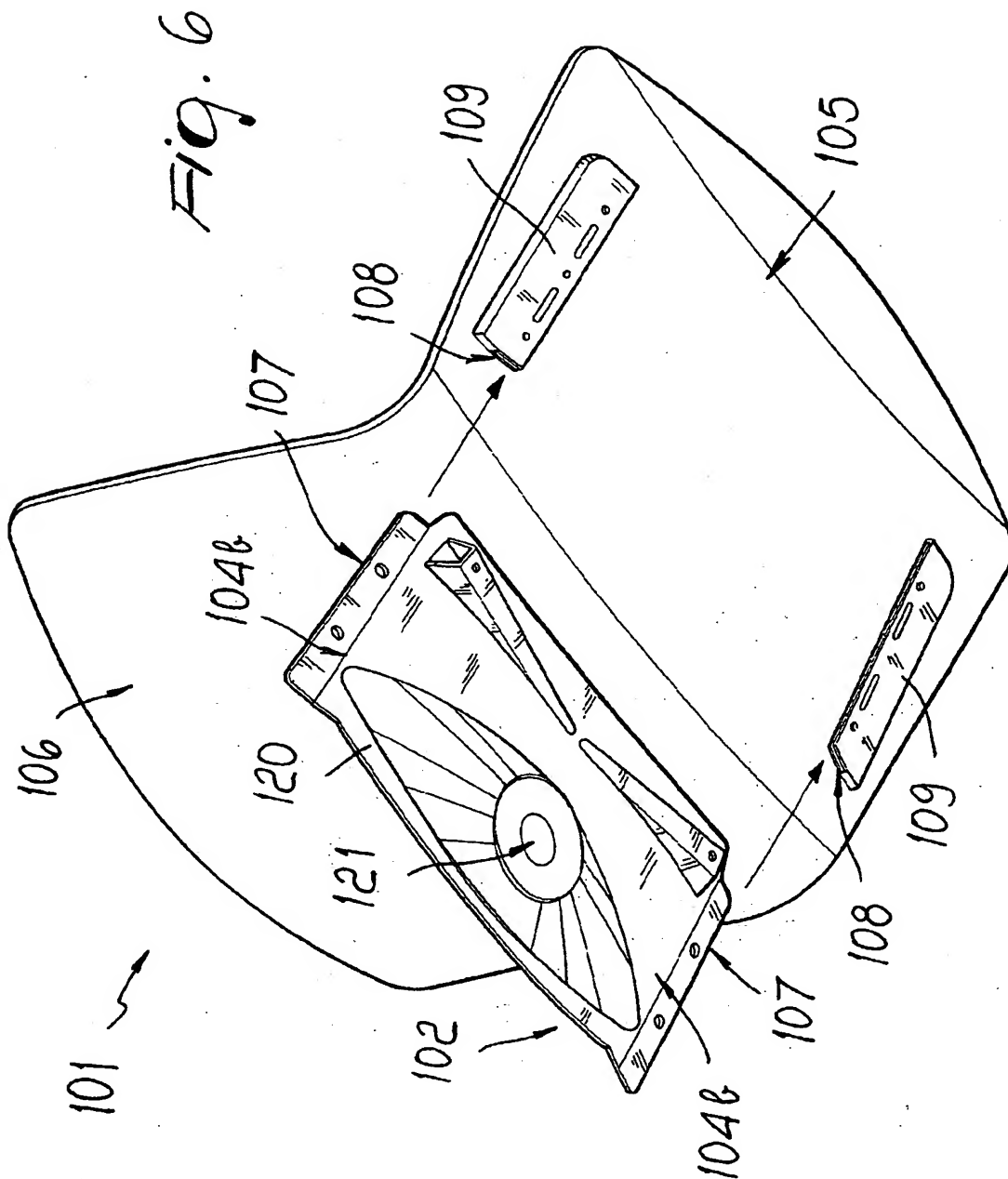
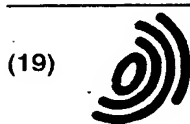


Fig. 3





(19)

Europäisches Patentamt
European Patent Office
Office européen des brevets



(11)

EP 1 284 113 A3

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:
02.01.2004 Bulletin 2004/01

(51) Int Cl.7: **A47C 1/023**, **A47C 4/02**,
A47C 3/12

(43) Date of publication A2:
19.02.2003 Bulletin 2003/08

(21) Application number: **02016810.0**

(22) Date of filing: **26.07.2002**

(84) Designated Contracting States:
AT BE BG CH CY CZ DE DK EE ES FI FR GB GR
IE IT LI LU MC NL PT SE SK TR
Designated Extension States:
AL LT LV MK RO SI

(72) Inventor: **Feltrin, Claudio**
31100 Treviso (IT)

(74) Representative: **Modiano, Guido, Dr.-Ing. et al**
Modiano & Associati SpA
Via Meravigli, 16
20123 Milano (IT)

(30) Priority: **09.08.2001 SM 200100015**

(71) Applicant: **Arper S.p.A.**
31050 Monastier di Treviso (Prov. of Treviso) (IT)

(54) **Chair**

(57) A chair (1) comprising a frame (2) for supporting a seat (5) optionally associated with a backrest (6), the frame being provided with means (7) for sliding coupling to complementarily shaped means formed below the seat (5).

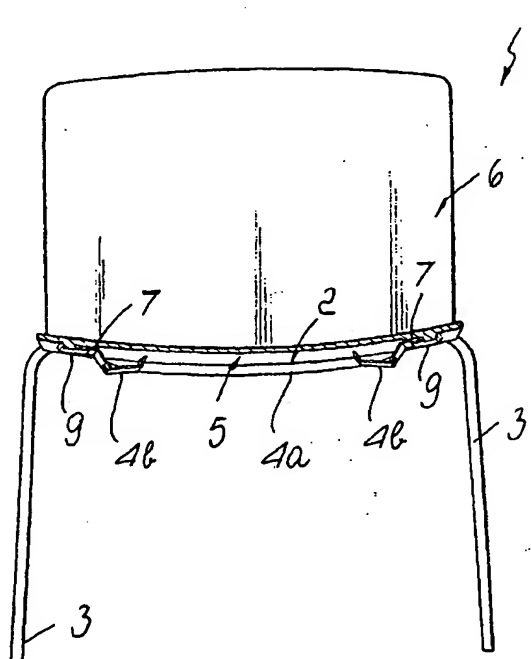


Fig. 2

EP 1 284 113 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 02 01 6810

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	GB 1 332 087 A (NAVAN STEEL PRODUCTS LTD) 3 October 1973 (1973-10-03)	1,2,4-7,9	A47C1/023 A47C4/02 A47C3/12
Y	* the whole document *	1-9	
Y	US 3 628 832 A (JENNINGS ROY E) 21 December 1971 (1971-12-21) * column 7, line 44 - column 8, line 15; figures 1-20 *	1-9	
X	US 4 084 850 A (AMBASZ EMILIO) 18 April 1978 (1978-04-18) * column 9, line 67 - column 10, line 6; figures 1-30 *	1,6,7,10	
X	US 5 924 770 A (TARNAY MATT ET AL) 20 July 1999 (1999-07-20) * column 5, line 39-67; figures 1-12 *	1,11	
X	US 4 790 432 A (REES MICHAEL) 13 December 1988 (1988-12-13) * column 2, line 45-65; figures 1-3 *	1,10	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			A47C
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		7 November 2003	Vollering, J
<p>CATEGORY OF CITED DOCUMENTS</p> <p>X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document</p> <p>T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document</p>			

EPO FORM 1503 03.02 (P04/C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 02 01 6810

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

07-11-2003

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
GB 1332087	A	03-10-1973	IE 35477 B1	03-03-1976
US 3628832	A	21-12-1971	US 3768863 A	30-10-1973
US 4084850	A	18-04-1978	AR 215588 A1	31-10-1979
			AT 352938 B	10-10-1979
			AT 338376 A	15-03-1979
			AU 502825 B2	09-08-1979
			AU 1376276 A	17-11-1977
			BE 841990 A1	19-11-1976
			BR 7508733 A	01-02-1977
			CA 1059892 A1	07-08-1979
			CH 607744 A5	31-10-1978
			DE 2559196 A1	30-12-1976
			DK 262576 A ,B,	14-12-1976
			ES 228508 Y	01-03-1978
			ES 228509 U	01-11-1977
			ES 229810 Y	16-01-1978
			FR 2313890 A1	07-01-1977
			GB 1501766 A	22-02-1978
			GB 1501767 A	22-02-1978
			GB 1501765 A	22-02-1978
			HK 20183 A	24-06-1983
			HK 20283 A	24-06-1983
			HK 20383 A	24-06-1983
			IT 1052631 B	20-07-1981
			JP 1165834 C	08-09-1983
			JP 54042250 A	04-04-1979
			JP 57035967 B	31-07-1982
			JP 1073575 C	30-11-1981
			JP 52000566 A	05-01-1977
			JP 54005748 B	20-03-1979
			JP 1346086 C	13-11-1986
			JP 57145615 A	08-09-1982
			JP 61002364 B	24-01-1986
			JP 1346087 C	13-11-1986
			JP 57145616 A	08-09-1982
			JP 61002365 B	24-01-1986
			JP 1431607 C	24-03-1988
			JP 57145617 A	08-09-1982
			JP 62026763 B	10-06-1987
			JP 1491538 C	07-04-1989
			JP 57145618 A	08-09-1982
			JP 63032441 B	30-06-1988
			NL 7605507 A ,B,	15-12-1976
			PT 65175 A ,B	01-07-1976

EPO FORM P0458

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 02 01 6810

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

07-11-2003

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 4084850 A		SE 431390 B	06-02-1984
		SE 7605129 A	14-12-1976
US 5924770 A	20-07-1999	US 6116692 A	12-09-2000
US 4790432 A	13-12-1988	NONE	

EPO FORM P459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82